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10/805,145	03/19/2004	Kenneth A. Frankel	720010.401	8651

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EXAMINER	
WOLLSCHLAGER, JEFFREY MICHAEL	
ART UNIT	PAPER NUMBER
1791	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/805,145	FRANKEL, KENNETH A.	
	Examiner	Art Unit	
	JEFFREY WOLLSCHLAGER	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2008 and 26 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment filed June 4, 2008 and the 37 CFR 1.132 declaration filed June 26, 2008 have been entered. Claims 1-8 and 10-13 are pending and under examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 5-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashton et al. (US 5,137,071) in view of Nelson et al. (US 6,458,306) and as evidenced by either of Reddy et al. (US 7,007,755) or Ishibashi et al. (US 6,110,406).

Regarding claim 1, Ashton et al. teach a method and apparatus used to form a three-dimensional composite structure, such as reinforced structural sheets and reinforced cylinders comprising stiffening inserts (Abstract; col. 1, lines 12-26; col. 2, lines 48-55). The apparatus and method comprises employment of a foam mandrel (60) having recesses complementary to the stiffening agent/insert (Figure 3; (76)). An elastomeric envelope bag (46) is formed about the mandrel with an additional layer of ABS resin (32). Layers of resin and fibers (Figure 3 and 4; col. 5, lines 55-65) are applied about the envelope bag. The stiffening agents, such as I-beam inserts, are placed in the recesses (Figure 3; (76)). The part is placed into a clamshell/split mold (14) and the bag (46) is inflated with pressure (Figure 5) to force the bag (46) and the layer (32) outward to press/force the part against the wall of the clamshell/split mold (14). The material and thereby the mold are heated and the part is cured (col. 7, lines 10-

31). Following the curing cycle, the foam is generally discarded and the envelope bag may be reused, suggesting the foam and the envelope bag are removed from the final product (col. 7, lines 31-40).

Ashton et al. do not expressly teach applying a vacuum between the bladder and the mandrel to force and conform the bladder against the mandrel. Furthermore, Ashton et al. do not teach how the foam is removed from the molded part and discarded (e.g. liquefying/dissolving the foam from the part). However, Nelson et al. teach an analogous method of forming hollow composite articles wherein they apply a vacuum in between the bladder and the mandrel to force and conform the bladder against the exterior surface of the mandrel (col. 12, lines 62-65). Furthermore, Nelson et al. teach the mandrel can be made of foam, such as starch foam, or any readily soluble in water material that presents no extensive waste disposal costs (col. 10, line 47-col. 11, line 46).

Additionally, as evidenced by either of Reddy et al. (col. 2, lines 27-44) or Ishibashi et al. (col. 3, line 55 - col. 4, lines 5), ABS is an elastic material.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have combined the teaching of Nelson et al. with the teaching of Ashton et al. and to have employed the foam material disclosed by Nelson et al. as the foam material in Ashton et al.'s method for the purpose of reducing waste disposal costs and providing a material that dissolves easily to facilitate removal of the foam mandrel from the part, as is routinely practiced in the art.

Further, it would have been obvious to one having ordinary skill at the time of the claimed invention to have applied a vacuum between the bladder and the mandrel, as suggested by Nelson et al., in the method of Ashton et al., for the purpose, as suggested by Nelson et al., of forcing the bladder to conform to the foam mandrel.

As to claim 3, the stiffening members employed by Ashton et al. are, for example, made of rubber (col. 6, lines 3-24).

As to claim 5, Ashton et al. (60) and Nelson et al. (col. 10, line 47-col. 11, line 46) disclose a foam material.

As to claim 6, Ashton et al. employ silicone rubber as the envelope bag (col. 5, lines 5-14).

As to claims 7 and 8, Ashton et al. disclose epoxy resin and glass and carbon fibers (col. 5, lines 55-65).

As to claim 10, Ashton et al. disclose pressures of about 50 to about 100 psig (col. 6, lines 41-66).

As to claims 11 and 12, Ashton et al. discloses an initial heating to 235 °F and then heating to a second temperature to cure the material for about 1 to 2 hours (col. 7, lines 10-31).

As to claim 13, Ashton et al. further disclose employment of a vacuum between the part and the interior surface of the mold (14) (Figure 5 (90)).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ashton et al. (US 5,137,071) in view of Nelson et al. (US 6,458,306) and as evidenced by either of Reddy et al. (US 7,007,755) or Ishibashi et al. (US 6,110,406), as applied to claims 1, 3, 5-8 and 10-13 above, in view of Hladik et al. (US 3,989,562).

As to claim 2, the combination teaches the method set forth above. Ashton et al. do not teach employment of a honeycomb structure as the stiffening insert. However, Hladik et al. suggest reinforcing materials such as beams, ribs and honeycombs are art recognized equivalent reinforcing structures (col. 1, lines 32-47).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed an art recognized equivalent alternative reinforcing material such as a honeycomb structure, as suggested by Hladik et al., in the method of Ashton et al. because it has been held that employing art recognized equivalents suitable for the same purpose is *prima facie* obvious (MPEP 2144.06-2144.07).

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashton et al. (US 5,137,071) in view of Nelson et al. (US 6,458,306) and as evidenced by either of Reddy et al. (US 7,007,755) or Ishibashi et al. (US 6,110,406), as applied to claims 1, 3, 5-8 and 10-13 above, in view of Ayorinde (U.S. Patent 6,444,071).

As to claims 2 and 4, the combination teaches the method of claim 1. Ashton et al. do not teach employment of a honeycomb or of a wood piece. However, Ayorinde discloses that honeycomb cores, foam, balsa wood and the like are art-recognized equivalents (col. 1, lines 29-35).

As such, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have employed the art recognized equivalent wood core disclosed by Ayorinde to replace the material inserts employed by Ashton et al. since it has been held that choosing between art recognized equivalents for the same purpose is *prima facie* obvious.

Response to Arguments

Applicant's arguments filed June 4, 2008 and the 37 CFR 1.132 declaration filed June 26, 2008 have been fully considered, but they are not persuasive. Applicant essentially argues that Ashton et al. do not teach an elastic bladder that is immediately adjacent to the resin and

fiber material. More specifically, applicant argues that the ABS layer of Ashton et al. is not elastic and, as such, Ashton et al. do not teach an elastic bladder that is immediately adjacent to the resin and fiber material since the non-elastic ABS layer of Ashton et al. is the layer that is immediately adjacent the resin and fiber material. In support of this argument, applicant has also filed a 37 CFR 1.132 declaration of Mr. Graham Allan. In the declaration, Mr. Allan essentially submits that 1) ABS is not generally considered to be an elastomeric material, 2) the ABS layer of Ashton et al. is hard and rigid and that this means the ABS cannot also be elastic, and 3) the ABS layer in combination with the silicone rubber layer is not the same or similar to the elastic bladder in the claims.

These arguments and the 1.132 declaration are not persuasive. As an initial matter, the examiner notes that claim 1 requires the bladder to be “elastic”. The claim does not require the bladder to be an elastomer. Additionally, the examiner does not find support in the original disclosure to limit the claim to an elastomer. The examiner does not dispute that ABS is not generally considered to be an elastomer/elastomeric material. However, the examiner submits the claims and the instant disclosure are directed to "elastic" materials not necessarily elastomers. While the examiner agrees that elastomers are elastic, the examiner does not agree that the material has to be an elastomer to be elastic as set forth in the claim. As such, the arguments and the declaration directed to ABS not being an elastomer are not commensurate in scope with the claims. The elastic material does not need to be an elastomer to meet the claim.

Additionally, applicant argues and the declaration states that the ABS layer of Ashton et al. is not elastic. This argument is not persuasive. While the examiner agrees that the submission by Mr. Allan provides a piece of evidence in favor of applicant’s position that ABS is not elastic, the examiner points to other evidence on the record which appears to contradict this

assertion. For example, the Reddy et al. reference, forms “elastomeric” concrete mixtures (Title) that have “greater elasticity” (col. 1, line 65) as a result of the "elastomeric" properties of ABS (col. 2, lines 1-44). Indeed, applicant’s June 4, 2008 response agrees that “the butadiene component of Acrylonitrile-Butadiene-Styrene (ABS) imparts elasticity to the ABS polymer chain.” (page 5, third full paragraph). Since ABS, by definition, contains butadiene, the examiner submits the ABS is reasonably interpreted to be elastic. The examiner further submits that his assertion regarding ABS being “elastic” would be further supported by a basic stress-strain curve for ABS. Such a curve would show an "elastic region" in the ABS material prior to yield (e.g. Young’s Modulus, Yield Strength, and Modulus of Elasticity). As such, the examiner submits that in one reasonably interpretation, the ABS layer is reasonably understood to form the elastic bladder.

Applicant argues and the declaration states that the ABS layer in combination with the silicone rubber layer is “not the same or similar to the elastic bladder in the claims”. This argument is not persuasive. The examiner submits that in a second reasonable interpretation of claim 1, the ABS layer in combination with the silicone rubber layer of Ashton et al. is reasonably understood to form the claimed elastic bladder. The examiner notes that the claim does not limit the elastic bladder to a single layer. As such, the examiner can not retreat from this interpretation as the claims remain open to a broad and reasonable interpretation.

The strong disagreement with the examiner’s position as set forth in the REMARKS filed June 4, 2008 is understood and noted. The examiner submits that he is in no way attempting to be recalcitrant or contumacious in the prosecution of this application or in his understanding and interpretation of polymer chemistry. The examiner submits that under a reasonable interpretation of the language positively recited in claim 1, the rejection is proper. Accordingly, the rejection is necessarily maintained. Importantly, the examiner notes that while the claims

are interpreted in view of the specification, it is improper for the examiner to import limitations from the specification into the claims. Additionally, it is improper for the examiner to narrowly interpret the claims when a broad reasonable interpretation is warranted. It is the examiner's position that the claims would need to be amended to overcome the rejection of record.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Lindsay (US 6,820,654) teaches a method of producing composite tubular structures (Figures 6a and 6b) that employs an elastomeric tube (408)/bladder having recesses. A mandrel may be placed within the elastomeric tube (col. 5, lines 44-52).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. W./
Examiner, Art Unit 1791

August 22, 2008

/Monica A Huson/
Primary Examiner, Art Unit 1791